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ABSTRACT

A 1990 study compared actual practice in trade and industrial education (T&I) degree and T&I option granting institutions with the standards delineated in section 2 of Standards of Excellence in T&I Education (U.S. Department of Education 1985). Descriptive data were compiled addressing the status of T&I teacher education in T&I undergraduate degree programs and T&I option undergraduate programs. Group 1, programs that offered degrees specifically titled "trade or industrial education," consisted of 28 respondents; group 2, programs that prepared persons for T&I teacher employment without a T&I degree title, consisted of 57 respondents. The instrument was an abbreviated version of the section covering standards for T&I teacher education. Data were transferred from the questionnaires to five tables that comprised the five phases of the study, namely: institutional characteristics, qualifications of T&I teacher educators, internship/inservice, program competencies, and sex equity. According to the findings, T&I teacher education programs could use the standards more fully in program planning and development. The percentages of T&I degree and T&I option programs that met or exceeded standards were reasonably consistent throughout the five delineated areas; there were differences of 8 percent or more in 14 of 39 categories. Of the five categories, sex equity showed the poorest rankings. (Appendixes include a list of degree title; a list of universities offering degree T&I education certification; and institutional responses to the questionnaires.) (YLB)

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Summary Report

Standards of Excellence in Trade and Industrial Teacher Education
A Status Report

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Standards of Excellence in Trade and Industrial Teacher Education
A Status Report

This is a summary report on a study sponsored by the National Association for Trade and Industrial Education. It was conducted from January to December, 1990.

Perspective

The Standards of Excellence in Trade and Industrial Education (USDE, 1985) provided Trade and Industrial Education (T&I) guidelines for (a) standards common to all T&I secondary and postsecondary program levels, (b) standards for T&I teacher education programs, and (c) standards for certification of shop, laboratory, classroom, and related teachers of T&I teacher education programs.

The standards study culminated in specific recommendations for each of the aforementioned areas. These recommended standards were intended for use by T&I personnel, administrators, certification committees, teacher educators, state department of education personnel, and others concerned with upgrading T&I teacher education programs. A national study of T&I certification requirements (Duenk, 1989) and a study of comparisons between standards and actual practice (Duenk, 1990) preceded this study on T&I teacher education standards.

Purpose and Objectives

The thrust of this study was to compare actual practice in T&I degree and T&I option granting institutions with the standards of delineated in Section 2, Standards for Excellence in Trade and Industrial Education (USDE, 1985).

Descriptive data were compiled which addressed the status of T&I teacher education in (a) T&I undergraduate degree programs and (b) T&I option undergraduate programs. Specific questions posed for study were:

1. What were the institutional characteristics?
2. What were the qualifications of T&I teacher educators?
3. What were the provisions of internship/inservice?
5. What was the status of sex equity?

Methodology

Sample

The data utilized in this study were gained from questionnaires received from chairpersons of programs listed in Dennis (1989-90) except for industrial arts, industrial arts education, and technology education. Group 1 consisted of the 35 T&I programs (Dennis, 1989-90) which offered degrees specifically titled "trade and industrial education", "trade(s) and industry", or "vocational industrial education". These names are classified as synonymous by Roberts (1971). Group one consisted of 30 respondents, or an 85% return. Two programs were phased out in 1990, resulting in a total of 28 usable responses.

Group two consisted of 57 respondents out of a total of 75 T&I option programs, or a 71% return. Eight questionnaires were unusable, culminating in a total of 49 usable responses. Group two T&I option programs were defined as those which prepared persons for T&I teacher employment without a T&I degree title. Examples were (a) industrial technology majors who took T&I teacher certification courses as electives or as additional credit, (b) vocational education, industrial education and other generic majors which allowed students to select T&I as an area of concentration, and (c) presence of a separate vocational-technical education department on the same campus which offered a teacher certification component to qualified personnel who had nonteacher education majors.

Appendix A portrays all degree titles indicated in Dennis (1989-90). Appendix B lists all universities which offered degree T&I certification in the United States, Washington, DC and two territories. Appendix C shows degree titles and numbers of trade and industrial education secondary teaching option graduates in 1989-90.

Instrumentation

The instrument used in this study was an abbreviated version of the section titled "Standards for Trade and Industrial Teacher Education" in Standards for Excellence in Trade and Industrial Education (USDE, 1985). The only items eliminated from the original document were descriptive content questions concerning each of the courses offered by the T&I programs as listed in sections D or E of the Standards of Excellence in T&I Education document.

Validation, Reliability

The original document, Standards for Excellence in Trade and Industrial Education (USDE, 1985), was assessed for validity and reliability by a 31 member committee. Inasmuch as changes were made to abbreviate the original instrument, a seven member committee composed of teacher educators, vocational education directors, vocational education principals and industrial training personnel served as an expert committee to assess validity and reliability of the instrument.

Data Collection and Analysis

The names of industrial education departmental chairpersons were obtained from the Industrial Teacher Education Directory (Dennis, 1989-90). Data were transferred from the questionnaires submitted by respondents to five tables which included each of the five phases of the study. These phases were:

1. Institutional characteristics
2. Qualifications of T&I teacher educators
3. Internship/inservice
4. Program competencies
5. Sex equity

An analysis of the data was accomplished by placing the following information in tabular form.

1. Numbers of T&I degree programs below, meeting or exceeding standards.
2. Numbers of T&I option programs below, meeting or exceeding standards.
3. Percentages of T&I degree programs meeting or exceeding standards.
4. Percentages of T&I option programs meeting or exceeding standards.
5. Average percentage.
6. Number of T&I course offerings in T&I degree programs.
7. Number of T&I course offerings in T&I option programs.
8. Percentages of T&I degree programs and T&I option programs which offered the course content recommended in the standards.

Results

Appendix D portrays the institutional responses to Standards of Excellence in Trade and Industrial Education (USDE, 1985) recommendations in the areas of (a) institutional characteristics, (b) qualifications of teacher educators, (c) internship/inservice, (d) program competencies, and (e) sex equity.

In the Instructional Characteristics area, the data showed the highest rank to be occupational experience (91.9%). Operating expense ranked lowest (41.1%).

In the Qualifications of Teacher Educators area the minimum of a masters degree in T&I education qualification ranked highest with a percentage of 83.2. Meeting the requirements for a T&I certificate (73.2%) and years of experience qualifications (72.2%) were considerably lower in ranks awarded.

The Internship/Inservice area ranked highest in providing instruction "which enabled craftspersons to make the transition to the role of the teacher" (96.5). Lowest was "providing an avenue for updating in technical skills" (83.9%).

The Program Competencies area data indicated that most T&I degree/option universities were offering courses in the areas recommended by the Standards of Excellence project. The high was T&I methods (98.2%) and the low was Vocational Industrial Clubs of America (81.4%).

The Sex Equity area ranked the lowest of the five areas. Faculty involvement in playing a key role in increasing the number of non-traditional students ranked highest (77.3%). The planning for recruitment, placement and retention of female students ranked lowest (60.95%).

The percentages of T&I degree and T&I option programs which met or exceeded standards were reasonably consistent throughout the five delineated areas. The largest differences occurred in the institutional support area (No. 11) of Institutional Characteristics. Option programs in travel, adequate faculty and support staff indicated 10.2%, 20.9%, and 30.2% differences in meeting or exceeding standards of T&I degree programs. Conversely, in the area of professional and technical development T&I degree programs ranked 11.3% over T&I option programs.

Other areas where large percentage differences occurred were as follows.

	Percentage Difference Between T&I Degree and T&I Option Programs
Institutional Characteristics	
Item 3. Your institution has an agreement with a state or national occupational testing service.	8.2%
Item 4. Your program has a policy of granting credit based upon an occupational competency examination.	12.3%
Item 5. A system exists to evaluate the occupational experience of candidates based upon state requirements for certification.	12.3%
Item 6. The major technical skills are identified to ensure that a student has the necessary skills required for area in which certification is sought.	10.2%
Qualifications of Teacher Educators	
Item 2. All T&I faculty members possess a minimum of a masters degree with emphasis in T&I education.	19.4%
Internship/Service	
Item 2. An inservice program is provided for continuing development of professional and occupational competencies of teachers.	13.3%
Program Competencies	
Item 1. Survival skills	24.5%
Item 7. VICA	15.8%
Item 12. Industrial Cooperative Training	11.2%
Item 13. Special Populations (handicapped & disadvantaged)	9.2%

Conclusions

T&I teacher education programs throughout the nation could utilize more fully Standards of Excellence in Trade and Industrial Education (USDE, 1985) in planning and development of programs.

2. There were differences between T&I degree and T&I option programs of 8% or more in 14 out

of 39 categories delineated in the Standard of Excellence study. Further study on the rationale for these differences should be undertaken.

3. Of the five categories, sex equity showed the poorest rankings for both T&I degree and T&I option programs.
4. Vocational Industrial Clubs of America (VICA) and survival skills courses are not receiving sufficient emphasis in T&I option programs.
5. There appears to be a deficiency in the functioning and composition of T&I advisory committees.

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Appendix A

Degree Titles Listed in Industrial Teacher Education Directory (Dennis, 1989-90)

Title of Degree	No. of Institutions
Adult Education	1
Applied Technology	1
Aerospace Technology	1
Automotive Engineering Technology	1
Aviation	1
Building Construction	1
Building Construction Management	1
Building Construction Technology	1
Career Occupational	1
Career and Technology Education	1
Computer Technology	1
Construction Management	2
Construction Technology	1
Corporate Management	1
Drafting and Design Technology	1
Electronics Technology	2
Education	1
Education for Industry	1
Education Administration (Voc. Ed. Spec.)	1
Engineering Technology	11
Extension and Technical Education	1
Fire Protection	1
General Industry	1
Graphic Arts Management	1
Graphic Arts Technology	1
Graphic Communications	2
Industrial Arts (general)	58
Industrial Arts Education	33
Industrial Arts Teacher Education	2
Industrial Arts and Technology	1
Industrial Arts and Technology Education	2
Industrial Construction and Supervision	1
Industrial Distribution	1
Industrial Education	43
Industrial Education (Industrial Option)	1

Title of Degree	No. of Institutions
Industrial Education and Technology	2
Industrial Illustration	1
Industrial Maintenance	1
Industrial Management	7
Industrial and Management Technology	1
Industrial Occupations	1
Industrial Safety	1
Industrial Sciences	1
Industrial Science Technology Education	2
Industrial Studies (Teaching)	1
Industrial Studies (Non-teaching)	1
Industrial Supervision and Management	1
Industrial-Technical Education	3
Industrial and Technical Education	3
Industrial and Technical Studies	1
Industrial Technology(ies)	98
Industrial Technology Education	4
Industrial Technology and Education	2
Industrial Technology (Sec. Ed.)	2
Industry and Technology	1
Industrial Technology Management	3
Industrial Training and Supervision	1
Industrial and Vocational Education	3
Interdisciplinary Technology	1
Manufacturing Design Technology	1
Manufacturing Engineering Technology	3
Manufacturing Technology	3
Mechanical Engineering Technology	1
Mechanical Technology	1
Occupational and Adult Education	1
Occupation Education	5
Occupational Safety/Hyg. Mgmt.	1
Occupational Training Management	1
Petroleum Technology	2
Photography	1
Printing Management	2
Production Technology	1
Restoration Technology	1
Safety Education	1
Secondary Education	1
Technical Communications	1

Title of Degree	No. of Institutions
Technical Education	6
Technology Education	29
Technical Illustration/Graphic Design	1
Technical and Industrial Education	1
Technology and Occupational Education	1
Technical Vocational Studies	1
Technology(ies)	13
Technology of Industry	1
Technology: Manufacturing	1
Trade and Industrial Education	15
Trade and Industrial State Teaching Certification	65
Trade(s) and Industry	4
Trade and Industry Education	1
Trade-Technical Education	1
Visual Communications	1
Vocational Education	38
Vocational Education (Ind. Tech. emphasis)	1
Vocational Education/Industrial Education	1
Vocational Education and Supervision	1
Vocational Industrial Education	12
Vocational Leadership	1
Vocational Rehabilitation Therapy	1
Vocational Teacher Education	1
Vocational-Technical Education	17
Vocational Technical and Industrial Education	1
Vocational Technical Teacher Education	1
Vocational-Technical, Trade and Industrial, Occupational	1
Vocational Technology	1
Vocational and Technology Education	1
Total	567

Appendix B

Universities Which Offer Degree Trade and Industrial Education Certification in the U. S. and Territories

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*Alabama A & M University
*Auburn University
*Arizona State University (program phased out, 1990)
*Northern Arizona University
University of Arkansas (Fayetteville)
*University of Arkansas (Pine Bluff)
University of Central Arkansas
California State University, Long Beach
California State University, Los Angeles
Pacific Union College
San Diego State University
*Colorado State Univeristy
Western State College (Gunnison)
Central Connecticut State University
Delaware State College
Florida A & M University
Florida State University
*Florida International University
University of Central Florida
University of South Florida
*Georgia Southern College
*Georgia State University
*Savannah State College
*University of Georgia
*Valdosta State College
*University of Hawaii
Idaho State University
University of Idaho
Chicago State University
Illinois State University
Southern Illinois University
Western Illinois University
Ball State University
Purdue University
Iowa State University (Ames)
University of Northern Iowa
Pittsburg State University
Wichita State University
Eastern Kentucky University

Appendix B continued:

Murray State University
University of Kentucky
University of Louisville
Western Kentucky University
Grambling University
Southern University at New Orleans
* Louisiana State University
University of Southern Maine
University of Maryland
Eastern Michigan University
Ferris State University
Northern Michigan University
* Western Michigan University (program was phased out in 1990)
Bemiji State University
Moorhead (Minn) State University
University of Minnesota (Duluth)
University of Minnesota
Alcorn State University
* Mississippi Valley State University
Central Missouri State University
Northwest Missouri State University
Southeastern Missouri State University
University of Missouri
* Northern Montana College
Kearney State College
Peru State College
University of Nebraska
Wayne State College
Keene State College
Glassboro State College
Montclair State College
** Rutgers University
Eastern New Mexico University
City College of New York
* State University of New York - Oswego
North Carolina A & T (Tech Ed)
* North Carolina State University
Valley City State College
Central State University (Wilberforce, OH)
* Kent State University
* The Ohio State University
University of Toledo
Wilmington College (not offering T&I courses after 8/29/90)
* Central State University (Edmond)

Appendix B continued:

* Oklahoma State University
Pandhandle State University
Southwestern Oklahoma State University
* Oregon State University
California University of Pennsylvania
Indiana University of Pennsylvania
* Temple University
* Pennsylvania State University
* University of Pittsburg
* University of Puerto Rico
South Carolina State College
Black Hills State University
* The University of Tennessee
Abilene Christian University
Sam Houston University
University of Houston
* University of North Texas
University of Vermont
* James Madison University
* Norfolk State University
* Virginia Polytechnic Institute & State University
* Virginia State University
* Central Washington University
Eastern Washington University
Western Washington University
West Virginia Institute of Technology
** University of Wisconsin - Madison
University of Wisconsin - Platteville
University of Wisconsin - Stout
* University of Wyoming

*Listed in Dennis as offering degrees in (a) trade & industrial education, (b) trade(s) & industry, or (c) vocational industrial education.

**Graduate degrees only

Appendix C

Degree Titles and Number of Trade and Industrial Education Secondary Teaching Option Graduates, 1989-90

	Baccalaureate	Masters	Specialist	Ed.D./Ph.D.	Total
*Building Construction	10				10
*Construction Tech.	3				3
*Electronics Tech.	2				2
Industrial Education	56	42	11	17	136
Ind. Studies (teach. option)	8				8
Ind. & Tech. Ed.	14	8		5	27
*Ind. Technology(ies)	188	140	20		348
Ind. Tech. Ed.	11	7	5	2	25
*Manufacturing Tech.	1				1
**Occup. and Adult Ed.	1			3	4
Occupational Educ.	4		5		9
*Occup. Training Mgmt.		4			4
*Technical Education	27	2			29
*Tech. Illus/Graphic Design	1				1
*Technology(ies)	3				3
Trade & Industrial Ed.	148	40		2	190
Trade(s) & Industry	11	6			17
Trade-Tech. Education	25				25
*Visual Communications	2				2
Vocational Education	125	113	6	26	270
Voc.Ed./Ind. Ed.		2			2
Vocational Ind. Ed.	93	21		8	122
Vocational-Tech. Ed.	24	69	1	18	112
*Vocational Technology	10				10
Total	**767**	**454**	**48**	**81**	**1360**

*Technology or management degrees with T&I teaching certification courses added.
**Military Program. Graduates without 2,000 hrs. of appropriate work experience must meet this qualification for secondary certification.

Appendix D. Institution Responses to Standards of Excellence
In Trade and Industrial Education Recommendations

1. Institutional Characteristics

	No. Below Standard		No. Meeting Standard		No. Exceeding Standard		% Meeting or Exceeding Standard		
	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	Aver. %
1. Do you have a functioning T&I advisory committee?	14	22	13	25	1	2	50.0%	55.1%	52.6%
2. Advisory committee is composed of instructors, administrators, state staff, students and business/industry/ labor.	15	26	12	20	1	3	46.4%	46.9%	46.7%
3. Your institution has an agreement with a state or national occupational testing service.	8	10	16	34	4	5	71.4%	79.6%	75.5%
4. Your program has a policy of granting credit based upon an occupational competency examination.	8	8	15	39	5	2	71.4%	83.7%	77.6%
5. A system exists to evaluate the occupational experience of candidates based upon state requirements for certification.	4	1	21	43	3	5	85.7%	98.0%	91.9%
6. The major technical skills are identified to ensure that a student has the necessary skills required for area in which which certification is sought.	8	9	18	36	2	4	71.4%	81.6%	76.5%
7. A file is maintained for each applicant's occupational skill verification.	6	8	20	37	2	4	78.6%	83.7%	81.2%
8. Preservice education of at least 30 clock hours and a program of in-service, on-site new teacher assistance is provided during the first year of service.	8	11	15	32	5	6	71.4%	77.6%	74.5%

*Key to Column Headings:

"No. Below Standard", "No. Meeting Standard", and "No. Exceeding Standard" are titles from Standards for Excellence in T Education (USDE, 1985).
"T&I Deg." means that university offers a degree titled "Trade & Industrial Education," "Trade(s) & Industry", or "Vocation Industrial Education". n=28
"Option Deg." means that university offers T&I degree certification but does not offer a T&I titled degree. n=49

Appendix D (continued)

1. Institutional Characteristics (continued)

	No. Below Standard		No. Meeting Standard		No. Exceeding Standard		% Meeting or Exceeding Standard		
	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	Aver. %
9. Your T&I teacher education program uses a performance based system of instruction and assessment for all students.	9	12	17	32	2	5	67.9%	75.5%	71.7%
10. Your T&I teacher education program allows for T&I teacher educators to select sites and supervise students training/field service requirements.	8	13	17	*30	3	4	71.4%	69.4%	70.4%
11. Institutional support is adequate in all areas									
a. travel	12	16	15	32	1	1	57.1%	67.3%	62.2%
b. adequate faculty	11	9	16	38	1	2	60.7%	81.6%	71.2%
c. support staff	15	10	22	37	1	2	46.4%	79.6%	63.0%
d. interagency co-operation	4	4	22	44	2	1	85.7%	91.8%	88.8%
e. operating expense	17	28	10	20	1	1	39.3%	42.9%	41.1%
f. professional & technical development	6	16	21	32	1	1	78.6%	67.3%	72.9%
g. qualified T&I program leader	3	7	20	41	5	1	89.3%	85.7%	87.5%

T&I deg. n=28
Option deg. n=49
*Two responses non applicable

Appendix D (continued)

2. Qualifications of T&I Teacher Educators

	No. Below Standard		No. Meeting Standard		No. Exceeding Standard		% Meeting or Exceeding Standard		
	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	Aver. %
1. All T&I faculty members meet existing state requirements for a T&I certificate.	7	14	16	31	5	4	75.0%	71.4%	73.2%
2. All T&I faculty members possess a minimum of a masters degree with emphasis in T&I education.	2	13	16	32	10	4	92.9%	73.5%	83.2%
3. All T&I faculty members have at least three years of T&I teaching experience in a state approved program.	7	15	10	29	11	5	75.0%	69.4%	72.2%

T&I deg. n=28
Option deg. n=49

3. Internship/Service

	No. Below Standard		No. Meeting Standard		No. Exceeding Standard		% Meeting or Exceeding Standard		
	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	Aver. %
1. Your T&I program provides an avenue for teachers to update their technical skills.	5	7	17	36	6	6	82.1%	85.7%	83.9%
2. An inservice program is provided for continuing development of professional and occupational competencies of teachers.	2	10	22	35	4	4	92.9%	79.6%	86.3%
3. Your T&I program provides instruction which enables craftspersons to make the transition to the role of teacher.	2	0	19	46	7	3	92.9%	100%	96.5%

T&I deg. n=28
Option deg. n=49

Appendix D (continued)
4. Program Competencies

Does your T&I program offer separate courses of at least 3 quarter hours which allow students to gain professional competencies in the following areas?	Yes		No		Included in Another Course		% Offering or Including in Another Course		
	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	Aver. %
1. Survival skills	18	32	0	12	10	5	100	75.5	87.8
2. Program planning, i.e., community surveys, advisory committees	15	39	2	4	11	6	92.9	91.8	92.4
3. Resource usage and occupational analysis	20	40	3	6	5	3	89.3	87.8	88.6
4. Curriculum development	23	45	2	1	3	3	92.9	98.0	95.5
5. Instructional execution methods	26	48	1	0	1	1	96.4	100	98.2
6. Laboratory management	23	42	1	3	4	4	96.4	93.9	95.2
7. VICA	17	30	3	13	8	6	89.3	73.5	81.4
8. Student evaluation	18	42	2	1	8	6	92.9	98.0	95.5
9. Program evaluation (follow-up studies and other means)	16	31	4	9	8	9	85.7	81.6	83.7
10. Knowledge of related organizations and agencies i.e., student organizations, professional associations, etc.	17	29	4	7	7	13	85.7	85.7	85.7
11. Principles of vocational education, i.e., foundations, history, philosophy, legislation, etc.	20	43	1	2	7	2	96.4	91.8	94.1
12. Industrial cooperative training	16	36	6	5	6	8	78.6	89.8	84.2
13. Special populations (handicapped & disadvantaged)	18	30	2	8	8	11	92.9	83.7	88.3

T&I deg. n=28
Option deg. n=49

Appendix D (continued)
5. Sex Equity

	No. Below Standard		No. Meeting Standard		No. Exceeding Standard		% Meeting or Exceeding Standard		
	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	T&I Deg.	Option Deg.	Aver. %
1. Your program encourages faculty to play a key role in increasing non-traditional candidates to T&I programs	7	7	18	32	3	7	75.0	79.6	77.3
2. Your program has identified plans for recruitment, placement, and retention of female students	11	17	15	26	2	4	60.7	61.2	60.9
3. T&I teachers are offered workshops in sex equity	10	20	16	29	2	0	64.3	59.2	61.8

T&I deg. n=28
Option deg. n=49